

# Hytrel® HTR8332 BK320

## THERMOPLASTIC POLYESTER ELASTOMER

Common features of Hytrel® thermoplastic polyester elastomer include mechanical and physical properties such as exceptional toughness and resilience, high resistance to creep, impact and flex fatigue, flexibility at low temperatures and good retention of properties at elevated temperatures. In addition, it resists many industrial chemicals, oils and solvents. Special grades include heat stabilised, flame retardant, food contact compliant, blow molding and extrusion grades. Concentrates offered include black pigments, UV protection additives, heat stabilisers, and flame retardants. Hytrel® thermoplastic polyester elastomer is plasticiser free.

The good melt stability of Hytrel® thermoplastic polyester elastomer normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Hytrel® thermoplastic polyester elastomer typically is used in demanding applications in the automotive, fluid power, electrical/electronic, consumer goods, appliance and power tool, sporting goods, furniture, industrial and off-road transportation/equipment industry.

Hytrel® HTR8332 BK320 is designed for blow molding or processing techniques requiring high melt viscosity. It has nominal hardness of 50D, is pigmented black with fine particle size carbon black, and contains a general purpose stabilizer. It shows excellent mechanical properties at elevated temperatures, superior fatigue, abrasion, and grease resistance.

### Product information

Resin Identification	TPC-ET	ISO 1043
Part Marking Code	>TPC-ET<	ISO 11469

### Rheological properties

Temperature	230 °C	
Load	10 kg	
Melt mass-flow rate	10 g/10min	ISO 1133

### Typical mechanical properties

Tensile modulus	106 MPa	ISO 527-1/-2
Stress at 10% elongation	8 MPa	ISO 527-1/-2 or ISO 37
Tensile stress at break	28 MPa	ISO 527-1/-2
Tensile strain at break	300 %	ISO 527-1/-2
Flexural modulus	100 MPa	ISO 178
Charpy notched impact strength, -30 °C	N kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.49	
Low temperature brittleness	-50 °C	ISO 812
Shore D hardness, 15s	45	ISO 48-4 / ISO 868
Tear strength, parallel	100 kN/m	ISO 34-1
Tear strength, normal	100 kN/m	ISO 34-1

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### Thermal properties

Melting temperature, 10°C/min	199 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	-40 °C	ISO 11357-1/-3
Vicat softening temperature, 50°C/h 10N	163 °C	ISO 306

### Flammability

FMVSS Class	B	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80 mm/min	ISO 3795 (FMVSS 302)

### Physical/Other properties

Water absorption, 2mm	0.5 %	Sim. to ISO 62
Density	1160 kg/m <sup>3</sup>	ISO 1183

### Injection

Drying Recommended	yes
Drying Temperature	100 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.08 %
Melt Temperature Optimum	225 °C
Min. melt temperature	220 °C
Max. melt temperature	250 °C
Mold Temperature Optimum	45 °C
Min. mould temperature	45 °C
Max. mould temperature	55 °C

### Extrusion

Processing Moisture Content	≤0.06 %
Melt Temperature Optimum	200 °C

### Blow Molding

Drying Temperature	100 - 110 °C
Drying Time, Dehumidified Dryer	3 - 4 h
Processing Moisture Content	≤0.02 %
Melt Temperature Optimum	225 °C
Melt Temperature Range	220 - 240 °C
Mold Temperature Optimum	30 °C
Mold Temperature Range	20 - 40 °C

### Characteristics

Processing	Injection Moulding, Extrusion, Blow Moulding
Delivery form	Pellets
Special characteristics	Light stabilised or stable to light, U.V. stabilised or stable to weather, Heat stabilised or stable to heat

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## Additional information

Blow molding

POSTPROCESSING

## Automotive

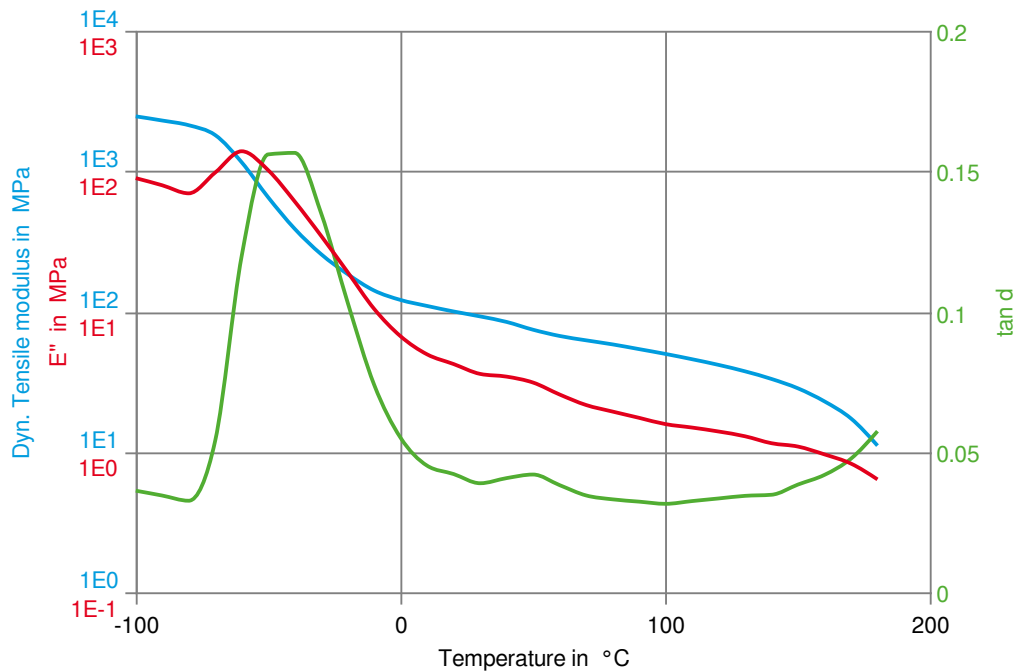
OEM

Mercedes-Benz

STANDARD

DBL5562.50 TPC

## Dynamic Tensile modulus-temperature



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### Chemical Media Resistance

#### Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C
- ✗ Hydrochloric Acid (36% by mass), 23°C
- ✗ Nitric Acid (40% by mass), 23°C
- ✗ Sulfuric Acid (38% by mass), 23°C
- ✓ Sulfuric Acid (5% by mass), 23°C
- ✗ Chromic Acid solution (40% by mass), 23°C

#### Bases

- ✓ Sodium Hydroxide solution (35% by mass), 23°C
- ✓ Sodium Hydroxide solution (1% by mass), 23°C
- ✓ Ammonium Hydroxide solution (10% by mass), 23°C

#### Alcohols

- ✓ Isopropyl alcohol, 23°C
- ✓ Methanol, 23°C
- ✓ Ethanol, 23°C

#### Hydrocarbons

- ✓ n-Hexane, 23°C
- ✓ Toluene, 23°C
- ✓ iso-Octane, 23°C

#### Ketones

- ✗ Acetone, 23°C

#### Ethers

- ✗ Diethyl ether, 23°C

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- ✗ SAE 10W40 multigrade motor oil, 130°C
- ✗ SAE 80/90 hypoid-gear oil, 130°C
- ✓ Insulating Oil, 23°C

#### Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5, 60°C
- ✗ ISO 1817 Liquid 2 - M15E4, 60°C
- ✗ ISO 1817 Liquid 3 - M3E7, 60°C
- ✗ ISO 1817 Liquid 4 - M15, 60°C
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✗ Diesel fuel (pref. ISO 1817 Liquid F), >90°C

#### Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ✗ Sodium Hypochlorite solution (10% by mass), 23°C

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- ✓ Sodium Carbonate solution (20% by mass), 23 °C
- ✓ Sodium Carbonate solution (2% by mass), 23 °C
- ✓ Zinc Chloride solution (50% by mass), 23 °C

### Other

- ✓ Ethyl Acetate, 23 °C
- ✗ Hydrogen peroxide, 23 °C
- ✗ DOT No. 4 Brake fluid, 130 °C
- ✗ Ethylene Glycol (50% by mass) in water, 108 °C
- ✓ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23 °C
- ✓ 50% Oleic acid + 50% Olive Oil, 23 °C
- ✓ Water, 23 °C
- ✗ Water, 90 °C
- ✓ Phenol solution (5% by mass), 23 °C

### Symbols used:

- ✓ possibly resistant  
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation  
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).